KIPS ENTRY TESTS PREPARATION

PHYSICS NMDCAT

TOPIC WISE TEST (UNIT– 6)

TOPICS:

Electrostatics

Q. 1 **A charge particle is free to move in an electric field. It will travel**

A. Always along a line of force
B. Along a line of force, if its initial velocity is zero
C. Along a line of force, if it has some initial velocity in the direction of an acute angle with the line of force
D. None of the above

Q. 2 **The potential at a point, due to a positive charge of $100\mu C$ at a distance of $9m$, is**

A. 10^4 V
B. 10^5 V
C. 10^6 V
D. 10^7 V

Q. 3 **The quantity $\frac{\Delta V}{\Delta r}$ is known as:**

A. Potential Difference
B. Potential Energy
C. Potential Gradient
D. All of these

Q. 4 **A unit positive charge + q_o placed anywhere in the vicinity of a positive point charge, experiences a repulsive force directed.**

A. Radially inward
B. Radially out ward
C. Radially zero
D. None of these

Q. 5 **Capacitance in the presence of medium is given by:**

A. $\frac{A\varepsilon_r\varepsilon_o}{r^2}$
B. $\frac{A\varepsilon_r}{r^2}$
C. $\frac{A\varepsilon_r\varepsilon_o}{d}$
D. $\frac{A\varepsilon_r}{d}$

Q. 6 **If E be the electric intensity of an electrostatic field, then the electrostatic energy density is proportional to**

A. E
B. E^2
C. $1/E^2$
D. E^3

Q. 7 **The coulombs force between two point charges is F. If magnitude of each charge is doubled and distance between charges is halved, the forces between them becomes**

A. F
B. 8F
C. 4F
D. 16F

Q. 8 **Relative permittivity ε_r is defined by the following relation.**

A. $\frac{C_{med}}{C_{vac}}$
B. $\frac{C_{vac}}{C_{med}}$
C. $C_{med} \times C_{vac}$
D. $C_{med} + C_{vac}$

Q. 9 **A charge of 5C experiences a force of 5000N when it is kept in a uniform electric field. What is the potential difference between two points separated by a distance of 1cm**

A. 250 V
B. 2500V
C. 1000V
D. 10V

Q. 10 **The quantity $\frac{1}{2}\varepsilon_o E^2$ has the significance of:**

A. Energy/farad
B. Energy/coulomb
C. Energy/volume
D. Energy

Q. 11 **A capacitor charges and discharges:**

A. Rapidly
B. Linearly
C. Exponentially
D. Logarithmically

Q. 12 **Force between the plates of a charged parallel plate capacitor is attractive and its magnitude is**

A. $\frac{Q^2}{A\varepsilon_0}$
B. $\frac{Q^2}{2A\varepsilon_0}$
C. $Q^2 A\varepsilon_0$
D. Q A ε_0

Q. 13 **Capacity of a parallel plate capacitor can be increased by**

A. Increasing the distance between the plates
B. Decreasing the thickness of the plates
C. Increasing the thickness of the plate
D. Decreasing the distance between the plates

Q. 14 **The electric intensity at infinite distance from the point charge is**

A. Zero
B. Infinite
C. 1-volt m^{-1}
D. Negative

Q. 15 **Value of ε_r for air is;**

A. 1.6
C. 1.986
B. 1.96
D. 1.0006

Q. 16 **A positive charge is moved from a low potential (a) to a high potential point (b) then the electric potential energy.**

A. Increase
B. Will remain the same
C. Decrease
D. Nothing definite can be predicted

Q. 17 **The force experience by unit positive charge placed at a point in an electric field is called:**

A. Coulomb's force
B. Faraday's force
C. Lorentz's force
D. Electric field intensity

Q. 18 **Potential due to charge q at distance 1m is 5V, at distance 3m will be**

A. $\frac{5}{3}$V
B. $\frac{7}{3}$V
C. $\frac{3}{5}$V
D. $\frac{3}{7}$V

Q. 19 **A capacitor of 100 pF is charged to 100 V. The charge accumulated on the plates of the capacitor is**

A. 10^{-6}C
B. 6×10^{-2}C
C. 10^{-8}C
D. 6×10^{-4}C

Q. 20 **Electric lines of force about a negative point charge are**

A. Circular, anticlockwise
B. Radial inwards
C. Circular, clockwise
D. Radial outwards

Q. 21 **Two opposite point charges each of magnitude 1C are separated by a distance of 2m. The electric potential at middle point between them is**

A. 1V
B. 0.5V
C. 0.85V
D. 0V

Q. 22 **12 J of work is to be done against an existing electric field to take a charge of 0.01 C from A to B. Find The potential difference between B and A.**

A. 120 V
B. 1200 V
C. 1.2 V
D. 12 V

Q. 23 **What will be the electric potential energy of a 7 nC charge that is 2cm from a 20 nC charge?**

A. 6.3×10^{-1}J
B. 6.3×10^{-5}J
C. 6.3×10^{-5}V
D. 1.3×10^{-5}J

Q. 24 **A one microfarad capacitor of a TV is subjected to 4000 V potential difference. The energy stored in capacitor is**

A. 8 J
B. 16 J
C. 4×10^{-3} J
D. 2×10^{-3} J

Q. 25 **Two capacitors each of capacitance 2μ F are connected in parallel and this combination is connected in series with a 12μ F capacitor. The resultant capacity of the system will be**

A. 16μF
B. 13μF
C. 6 μF
D. 3 μF

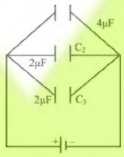
Q. 26 **The unit of ε_r**

A. $Nm^{-1}A^{-1}$
B. $N^{-1}m^{1}C^{2}$
C. $Nm^{2}C^{2}$
D. No unit

Q. 27 **Equivalent capacitance is greater than individual capacitances in**

A. Series combination
B. Parallel combination
C. Both series and parallel combinations
D. None of above

Q. 28 **Three capacitors C_1, C_2 and C_3 are connected in parallel as in the Fig. The equivalent capacitance will be**



A. 8μF
B. 0.8μF
C. 1μF
D. 16μF

Q. 29 **A conducting hollow sphere of radius 0.1 m is given a charge of 10 μ C. The electric potential on the surface of sphere will be**

A. Zero
B. 3×10^{5} V
C. 9×10^{5} V
D. 9×10^{9} V

Q. 30 **One giga-volt =**

A. 10^{9} volts
B. 10^{6} volts
C. 10^{-9} volts
D. 10^{-6} volts

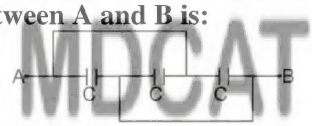
Q. 31 **The electric field intensity $\vec{E}$ is the**

A. Integral of potential
B. Negative gradient of energy
C. Positive gradient of energy
D. Negative gradient of potential

Q. 32 **S.I unit of electric intensity is NC^{-1} or equivalent as**

A. $V.m^{-1}$
B. $V^{-1}.m^{-1}$
C. mV^{-1}
D. V.m

Q. 33 **Three equal capacitors, each with capacitance C are connected as shown in fig. the equivalent capacitance between A and B is:**



A. C
B. C/3
C. 3C
D. 3/2C

Q. 34 **Two thin infinite parallel plates have uniform charge densities + σ and -σ . The electric field in the space between them is**

A. $\sigma/2\varepsilon_0$
B. σ/60
C. σ/ε_0
D. Zero

Q. 35 **Neutral zone in electric field of two similar charges is region where**

A. Both positive and negative charges are present
B. Equal quantity of both positive and negative charges are present
C. An electric dipole exists

D. No electric field line passes

Q. 36 Capacitance with air is 10F, if a dielectric of $_r$ = 100 is inserted then new capacitance

A. 1000 F B. 1000 F
C. 10 ηF D. 100 F

Q. 37 Three capacitors of capacitance 12 μF each are available. The minimum and maximum capacitances which may be obtained from these are

A. 12 μF, 36 μF B. 4 μF, 12 μF
C. 4 μF, 36 μF D. 0 μF, ∞ μF

Q. 38 Presence of dielectric always

A. Increases the electrostatic force B. Reduces the electrostatic force
C. Does not affect the electrostatic force D. Doubles the electrostatic force

Q. 39 A capacitor stores energy in the form of:

A. Magnetic field B. Heat energy
C. Electrical energy D. Mechanical energy

Q. 40 When an RC circuit is connected across a battery amount of charge deposited on plates is .....times the equilibrium charge after one time constant.

A. 0.63 B. 0.67
C. 0.75 D. 0.86

Q. 41 The net charge on a capacitor (each plate having magnitude of charge q) is:

A. Infinity B. 2q
C. $\frac{q}{2}$ D. Zero

Q. 42 An object carrying 3C of charge is moved 10 cm from point A to point B by an electric field if V_{AB} = 700 V, the work done by the electric field is:

A. 2100 W B. 210 W
C. 70 W D. 0.3 W

Q. 43 Two point charges +3μC and +8μC repel each other with a force of 40N. If a charge of -5μC is added to each of them, then the force between them will become

A. –20N B. +20N
C. +10N D. –10N

Q. 44 A capacitor of capacitance C has charge Q and stored energy is W. If the charge is increase to 2Q. The stored energy will be

A. W/4 B. W/2
C. 2W D. 4W

Q. 45 The increase in capacitance of a capacitor due to presence of dielectric is due to _____ dielectric.

A. Electric polarization B. Electrolysis
C. Ionization D. None of these

Q. 46 If the medium between the charges is not free space, then electrostatic force will

A. Increase B. Decrease
C. Remain same D. none of these

Q. 47 The force between two neutrons placed at a distance of 1cm from each other is:

A. 9×10^9N B. 4×10^4N
C. Zero D. 1.6×10^{-19}N

Q. 48 Surface charge density of the charge is

A. charge × area B. $\frac{\text{charge}}{\text{area}}$
C. $\frac{\text{area}}{\text{charge}}$ D. $\frac{\text{charge}}{\text{volt}}$

Q. 49 When two capacitors of capacitance 1μ F and 2 μ F are connected is series then the effective capacitance will be

A. $\frac{2}{3}\mu F$ B. $\frac{3}{2}\mu F$

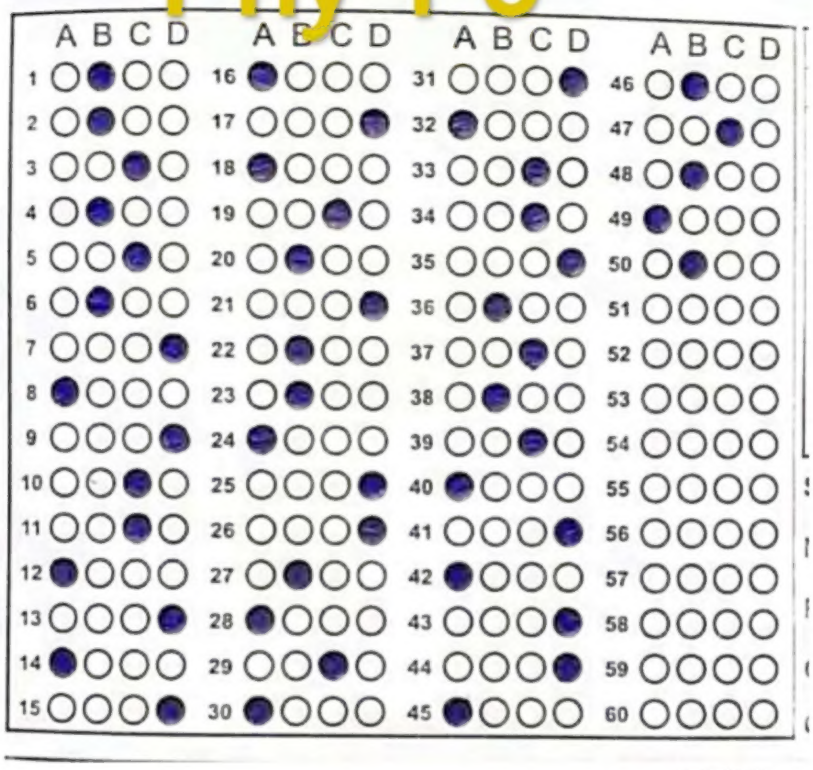
C. $3\mu F$ D. $4\mu F$

Q. 50 A capacitor of capacitance C is connected to battery of emf V_0. Without removing the battery, a dielectric of strength ε_r is inserted between the parallel plates of the capacitor C, then the charge on the capacitor is

A. CV_0 B. $\varepsilon_r CV_0$

C. $\frac{CV_0}{\varepsilon_r}$ D. None of these

Phy T-6



	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	○	●	○	○	16	●	○	○	○	31	○	○	○	●	46	○	●	○	○
2	○	●	○	○	17	○	○	○	●	32	●	○	○	○	47	○	○	●	○
3	○	○	●	○	18	●	○	○	○	33	○	○	●	○	48	○	●	○	○
4	○	●	○	○	19	○	○	●	○	34	○	○	●	○	49	●	○	○	○
5	○	○	●	○	20	○	●	○	○	35	○	○	○	●	50	○	●	○	○
6	○	●	○	○	21	○	○	○	●	36	○	●	○	○	51	○	○	○	○
7	○	○	○	●	22	○	●	○	○	37	○	○	●	○	52	○	○	○	○
8	●	○	○	○	23	○	●	○	○	38	○	●	○	○	53	○	○	○	○
9	○	○	○	●	24	●	○	○	○	39	○	○	●	○	54	○	○	○	○
10	○	○	●	○	25	○	○	○	●	40	●	○	○	○	55	○	○	○	○
11	○	○	●	○	26	○	○	○	●	41	○	○	○	●	56	○	○	○	○
12	●	○	○	○	27	○	●	○	○	42	●	○	○	○	57	○	○	○	○
13	○	○	○	●	28	●	○	○	○	43	○	○	○	●	58	○	○	○	○
14	●	○	○	○	29	○	○	●	○	44	○	○	○	●	59	○	○	○	○
15	○	○	○	●	30	●	○	○	○	45	●	○	○	○	60	○	○	○	○

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